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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,857	02/08/2001	Jinlian Hu	401088	6169

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WASHINGTON, DC 20005-3960

EXAMINER

AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 10/22/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/778,857

Applicant(s)

HU ET AL.

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 February 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 7 and 8, are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al (U.S. patent 5,739,904) in view of Shofner et al (U.S. patent 5,533,145).

Regarding claim 1, Berger et al discloses method of optically measuring the surface of yarn packages comprising;

a method of three-dimensional measurement, evaluation, and grading of fabric/textile structure/garment appearance (column 3, lines 48-61, optically measuring the surface of yarn packages);

with a fixed digital camera positioned above a piece of fabric, shining at least two different parallel light beams from inclined directions onto a surface of the fabric (Fig. 1, column 6, lines 3-15, determinig directly the location of the scanning spot causing the reflection);

capturing different reflected images of the surface of the fabric with the camera, analyzing the reflected images captured to derive values of parameters of the surface based on intensities of

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light reflected from a number of evenly distributed points on the surface (column 7, lines 50-58, the intensity of reflected light may also be measured by the sensors and associated to the respective scanning points).

However Berger et al is silent about "at least two different light. On the other hand Shofner et al teaches (Fig. 8, CCD 130, and four stripe 150, also Fig. 9, column 12, lines 26-38, the mat could be exposed to four different light conditions such as different type of illumination).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Berger et al invention according to the teaching of Shofner et al because it provides a plurality of digital data representations corresponding to the plurality of optical images and analyzes the digital data to find images of entities of interest for quality assurance in the textile and improve accuracy.

Regarding claims 2, 7 and 8, it recites similar limitation as claims 1, is similarly analyzed.

3. Claim 3, is rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al and Shofner et al and further in view of Morooka et al (U.S. 5,204,913).

Regarding claim 3, Berger et al discloses an apparatus for three dimensional measurement, evaluation, and grading of fabric/textile structure/garment appearance, the apparatus including: a digital camera mounted above a piece of fabric, means to shine at least two inclined different parallel light beams onto a surface of the fabric below the camera, means for analyzing images of the fabric captured by the camera, and a computer programmed to derive values of P and Q from the images captured, where P and Q are summations of surface gradients for a plurality of evenly distributed points in an x direction and in a y direction, respectively, on

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the surface of the fabric (column 5, lines 63 through column 6, line 16, the light beam 2 arrives in a first plane 3 at a point with coordinates (X1, Y1, X1) where it is diffused and are focused by a lens 4 in a point and directed to a sensor 5).

However Berger et al and Shofner et al are silent about "summation of surface". On the other hand Morooka et al teaches (column 4, lines 50-60, refer to as an addition sum value (summation) is discriminated by the image recognizing apparatus 28, thereby determining the angle of inclination of striped pattern on the object).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Berger et al and Shofner et al invention according to the teaching of Morooka et al because it provides determination of level of detail information suitable for controlling various factors involved in the preparation of the perspective view to achieve better resolution and enhancement of desire image.

### Allowable claims

4. The following is an examiner's statement of reasons for allowance.

In claim 4, the prior art of record fails to teach or suggest a method of grading fabric/textile structure appearance based on values P and Q, the method comprising: using a fixed digital camera positioned above a piece of the fabric, shining at least two different parallel light beams from inclined directions onto a the surface of the fabric, capturing different images reflected from the surface with the camera, analyzing the images captured to derive values of P and Q, where P and Q are summations of surface gradients for a plurality of evenly distributed points in an x direction and in a y direction respectively, calibrating  $P + Q$  against a subjective grade analysis of the fabric, and thereafter, using calibrated P and Q and determining the grade of the fabric.

Thus claims 5-6 is allowable.

***Other prior art cited***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (5,255,352) to Falk mapping of two-dimensional surface detail on three-dimensional surfaces.

U.S. patent (4,941,183) to Bruder et al is cited for method and apparatus for optimizing the cutting of material.

U.S. patent (5,751,834) to Lisk, Jr is cited for image analysis method for determining pigment levels in fabric.

U.S. patent (5,125,034) to Hudson et al is cited for method and apparatus for analyzing fabric conditions.

U.S. patent (5,680,333) to Jansson is cited for predictive simulation of heather fabric appearance.

U.S. patent (6,310,627) to Sakaguchi is cited for method and system for generating a stereoscopic image of a garment.

**Contact Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907.

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The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246.

**Any response to this action should be mailed to:**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**Or faxed to:**

(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to examiner).

**Hand delivered responses** should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to T.C. customer service office whose telephone number is (703) 306-0377.

*Syed Azarian*  
Patent Examiner  
Group Art Unit 2625  
October 5, 2003

  
TIMOTHY M. JOHNSON  
PRIMARY EXAMINER